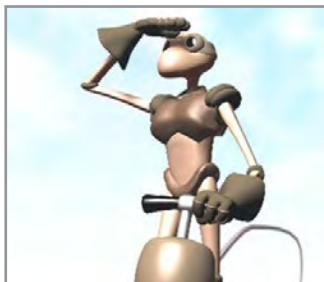
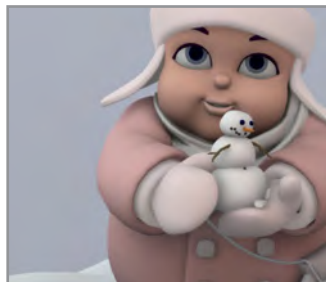


3D Producer - Reader 2009 - V. 8

The illusion of life (The 12 principles by Ollie Johnston and Frank Thomas)



1) Squash and stretch



2) Anticipation



7) Arcs



8) Secondary action

3) Staging

9) Timing

4) Straight ahead action and pose to pose

10) Exaggeration

5) Follow through and overlapping action

11) Solid drawing

6) Slow in and slow out

12) Appeal

Glossary

Hierarchical linking:

Connecting parts of a model so that they move in relation to each other. In a character model, the arms are linked to the body. The movement of the child objects (here arms) depends, in part, on movement of the parent (here the body).

Inverse Kinematics :

(animation) method of model animation that helps in creating more natural movements. With IK, moving character's hand will make the arm follow the hand in a natural matter.

Joint:

A joint is like a bone. Joints can be connected to create appendages. Joints are often what the animator moves to control a character.

Manipulator:

This is a visual control that the user manipulates in 3D to change an attribute.

Parent:

A parent is something that has one or more children. Since a parent can also have a parent its children will have indirect parents. These are parents (grandparent, great-grandparents, etc) of their direct parents.

Root:

This is the fictitious node that is the parent of all other nodes in the scene. There is the concept of a root node so that the entire scene can be thought of as a tree starting at the root.

Skeleton:

A hierarchy of joints that define the inner structure of a character.

Constraint:

A constraint will keep the position, aim, orientation or a combination of the three of a node in check. The target can be any object or dummy controller object.

Chain:

A string of bone-objects joint back to back, a single chain would function like a snake. Chain with a single split or multiple split are called multi chains rigs.

End effector:

The last node used as an IK-handle at the end of a chain of bones.

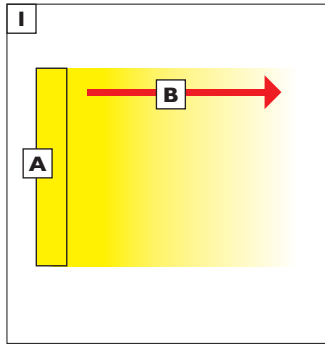
Anchor:

The fixed starting point of a chain. It marks the beginning of a chain and the endpoint of IK calculations.

Rig:

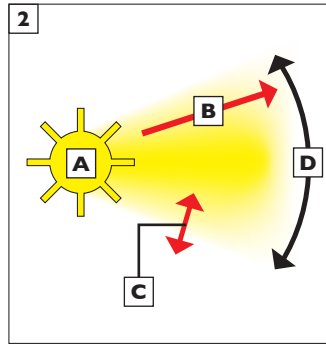
A skeleton of bones used to operate IK on a single or multi mesh character. Rigs are completed in the preparation stage of IK animation. All the limits, constraints, vertex maps and other attributes have to be in place before the rig is used in animation.

Common light terminology:



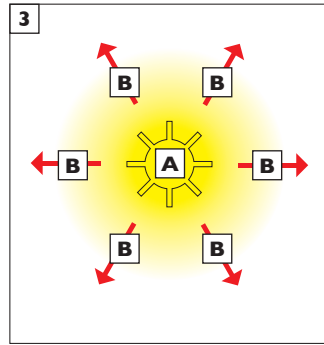
1) Parallel (directional) light

- A) light source
- B) direction and fall-off



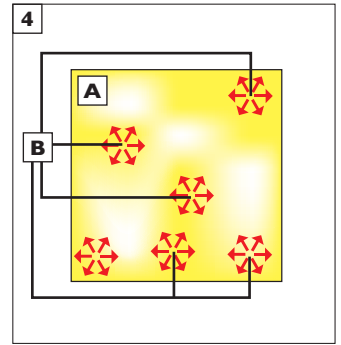
2) Spotlight

- A) light source
- B) direction and fall-off
- C) drop-off
- D) angle



3) Omnilight (pointlight)

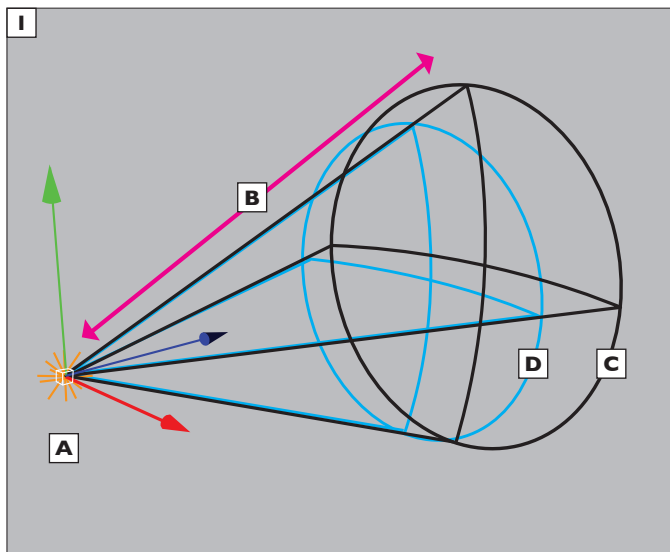
- A) light source
- B) direction and fall-off



4) Area (ambient/global) light

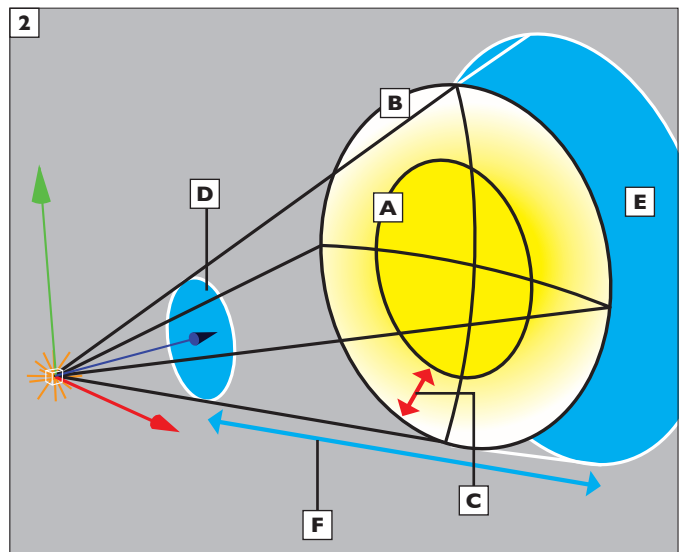
- A) light source
- B) direction and fall-off (samples)

Common light terminology:



1) Spotlight

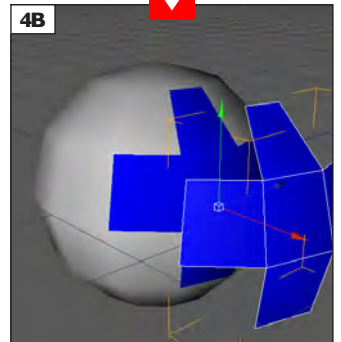
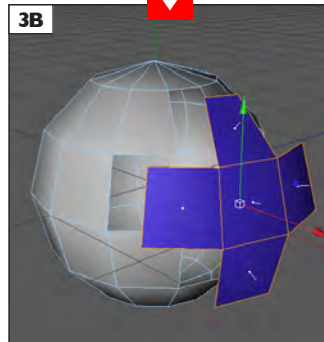
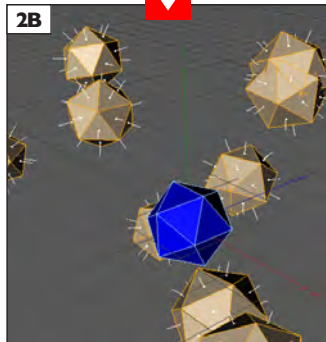
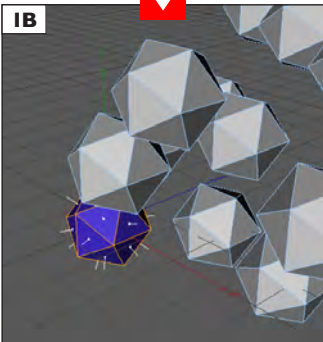
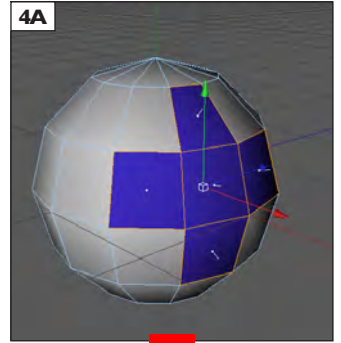
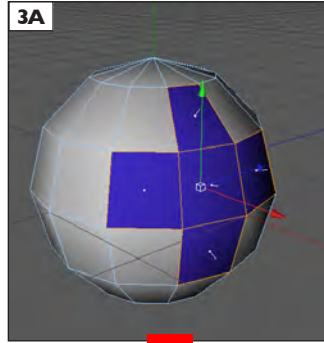
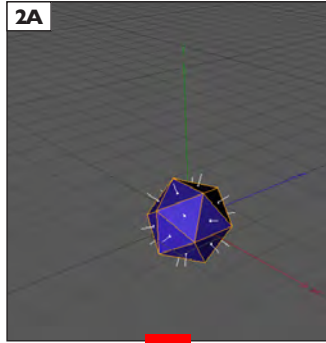
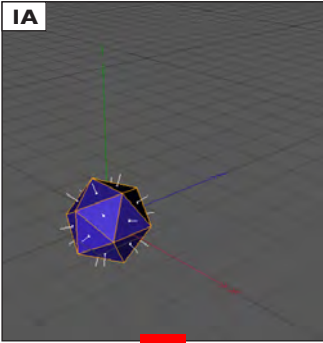
- A) light source pivot
- B) direction and fall-off
- C) illumination
- D) visible light



2) Spotlight

- A) inner angle
- B) outer angle
- C) drop-off
- D) near-clip
- E) far-clip
- F) clipping-range

Functions (2/2)



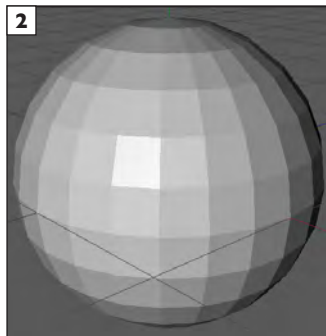
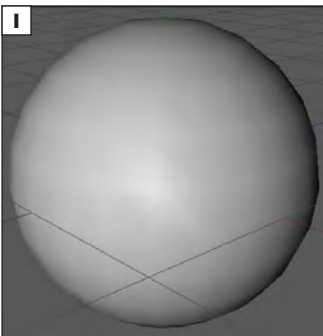
1) Array

2) Clone

3) Disconnect/
Explode segments

4) Split

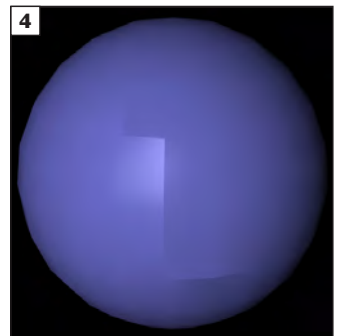
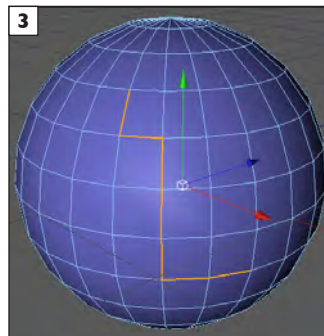
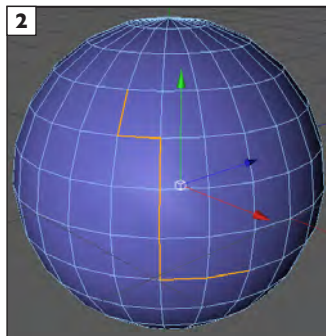
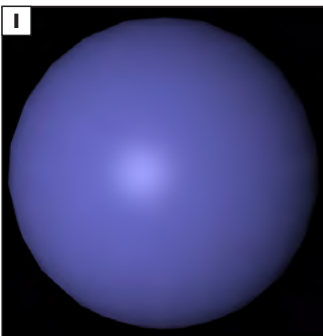
Phong shading



1) Phong shading tag added

2) Phong tag removed

Breaking phong shading



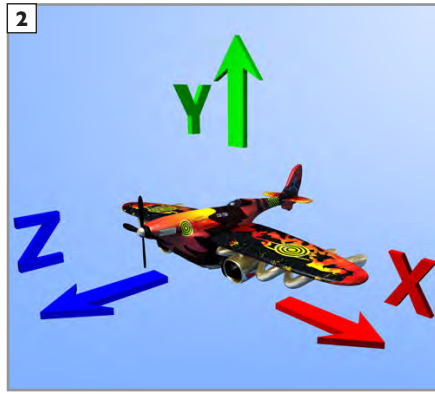
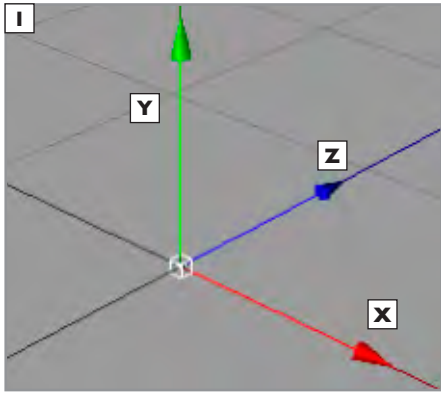
1) Sphere with Phong tag

2) Edge selected

3) Phong break added

4) Phong break in render

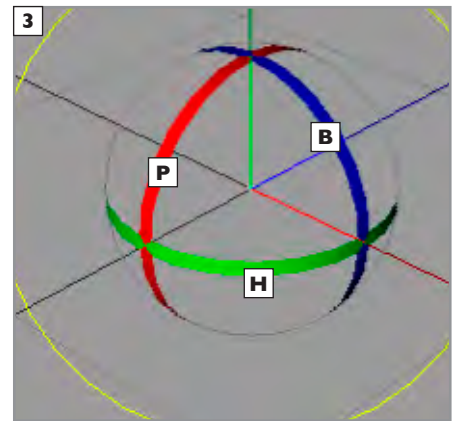
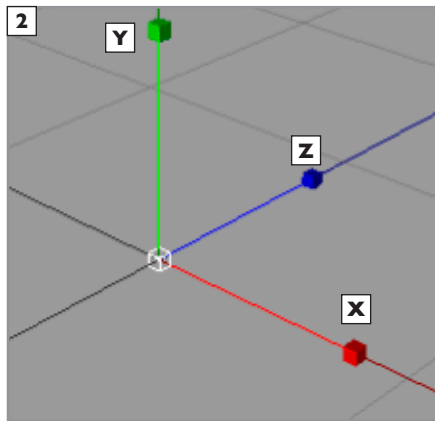
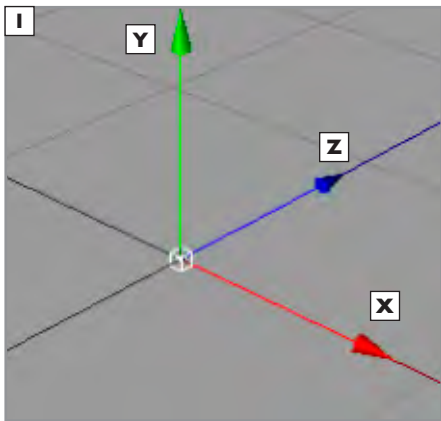
Navigation in 3D space



1) Cartesian Coordinates

2) Object in 3D space

Basic transformations

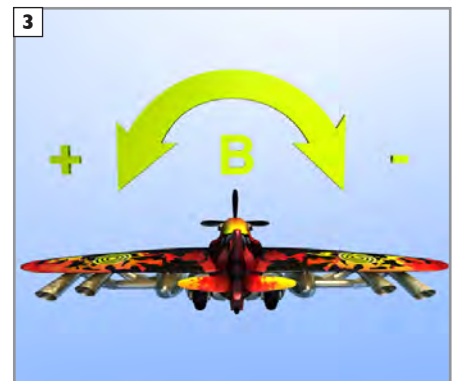


1) Movement (Meters)

2) Scale (relative scale / meters)

3) Rotation (degrees) Euler Coordinates

HPB (Heading, Pitch & Bank)



1) heading (degrees) - (Yaw)

2) Pitch (degrees)

3) Bank (degrees) - (Roll)

Opdracht omschrijving:

Modeleer een elektrisch apparaat met een stekker

Vorbereiding voor 3D modeling:

Het apparaat moet een representatie zijn van een echt bestaand model. Er moet gebruik worden gemaakt van image-planes als referentie. Deze image-planes bevatten op zijn minst twee blauwdrukken of foto's van het originele object. De image-planes moeten bij inleveren in de scene aanwezig zijn.

Modeling:

Gebruik verschillende methoden van modeling, niet alleen polygon-modeling. Maak waar mogelijk gebruik van HyperNURBS nurbs surfaces en deformers. De scene hoeft niet te worden voorzien van materials.

Advies:

- Probeer een model niet uit één object te bouwen
- Probeer het aantal polygonen zo laag mogelijk te houden Als het gaat om HyperNURBS is minder meer. Vooral als het gaat om hoeken en afrondingen zijn te veel polygonen erg vervelend.
- Overnieuw beginnen is geen misdaad. Vaak is dit vele malen sneller en beter dan blijven ploeteren met een niet meer werkbaar model.
- Maak van af het begin gebruik van goed file management. Het gaat je straks heel veel tijd besparen.
- gebruik deformers als "twist" en "bend" voor boren en dergelijke objecten.
- Gebruik booleans buiten HyperNURBS. De oplossing zal er qua shading beter uit zien dan er binnen
- Gebruik instance objects voor schroeven of andere gelijkende objecten.
- Zorg bij gebruik van een sweepNurbs voor een laag aantal intermediate points in de profiel spline
- Save de files incremental, Je wil misschien een keer kunnen terug keren naar een eerdere versie.
- Vergeet niet af en toe te saven. Vooral met point-level zijn objecten eenvoudig te verknallen. Activeer auto-safe.
- Stel vragen !!!

Wijze van inleveren:

De opdracht moet op de volgende manier worden ingeleverd:

- 📁 student naam en opdracht nummer
 - 📁 masters (research)
 - 📁 c4d_files (de project file)
 - 📁 TEX (alle gebruikte texturen)
 - 📁 renders



Beoordeling:

De opdracht wordt beoordeeld op:

- Reference research
- Name and file management
- Realism
- Modeling technique choices
- Polygon modeling (economy)
- Spline modeling (Nurbs surfaces)
- HyperNURBS weighting (if used)
- Extras (texturing)

